Amendments to the Specification

Please amend the indicated paragraphs of the specification as shown below in marked form.

At page 2, lines 12-19:

There is provided in the practice of this invention a sheet material with low oxygen permeability comprising a polymer sheet substrate coated with a cross-linked acrylate layer and a transparent oxygen barrier layer ~~of metal or oxide~~. The acrylate layer is a cross-linked polymerization product of an acrylate monomer or oligomer having an average molecular weight per acrylate group in the range of from 150 to 600. Preferably, there is another cross-linked acrylate layer over the barrier layer. Modifying the surface of the dielectric sheet for increasing its surface energy, preferably by reactive plasma treatment, enhances adhesion and curing or polymerization of the film by an electron beam or ultraviolet radiation. Chilling the substrate enhances deposition efficiency.

At page 6, lines 10-14:

To obtain low shrinkage, there should be a relatively low crosslink density. High crosslink density materials such as hexane ~~diol. dacryolith~~ diol diacrylate (HDDA) and trimethylol propane ~~dacryolith~~ diacrylate (TMPTA) have poorer adhesion than compositions with lower cross link density. A way of defining crosslink density and shrinkage is to consider the size of the molecule and the number of acrylate groups per molecule.

At page 16, lines 3-16:

It is hypothesized that the reactive species (ions and electrons) in the plasma disrupt carbon-carbon and carbon-hydrogen bonds in the substrate polymer. The reactive ions may combine with the disrupted bonds or the bonds may remain open and provide reactive sites for reaction with the acrylate monomers or oligomers. Furthermore, the surface of the substrate probably contains condensed contaminants such as water and organic molecules from its original processing and exposure to air before introduction into the vacuum. It is known that some organic molecules, particularly silanes and some industrial solvents, are so highly

adsorbed on surfaces and interfere with surface chemistry that the presence of the chemicals in some processing facilities is absolutely prohibited. That chemical changes occur on the surfaces of the substrate is confirmed by tests where an acrylate coating was applied over a surface containing a release layer such as a wax or silicone material. Such a surface was treated with a reactive plasma and an acrylate was ~~depositied~~ deposited on the treated surface and cross-linked by electron beam irradiation. It was found that the release coating was no longer effective and that the coating could not be removed from the substrate.

At page 21, lines 4-12:

Sheet polypropylene without any coating may have an oxygen permeability of about 100. However, referring to Fig. 3, if a layer of aluminum 65 is applied to a surface of a polypropylene sheet substrate 64, the oxygen permeability decreases to about 2.5. Surprisingly, when an acrylate layer 63 only about one micrometer thick is formed on the polypropylene and then covered with a layer of metal 65, the oxygen permeability drops to about 0.05, a value lower than metallized polyester. It is hypothesized that the film of liquid acrylate monomer deposited on the surface of the polypropylene has a smooth, high temperature surface and the surface remains smooth when the acrylate is polymerized. The metallized layer can then form a good oxygen barrier. Coating with aluminum as a barrier film is usually preferred.

At page 22, lines 4-19:

It has been found important to adequately protect the metallized film from mechanical damage to maintain low oxygen permeability. A topcoat of crosslinked acrylate applied over the metal film provides protection. If one contacts the metallized surface of a substrate against a roller in the vacuum system, inspections shows that a large number of microscopic areas have the metal film disrupted. These pinholes are large sources of leakage through the film. On the other hand, applying a topcoat of crosslinked acrylate to protect the metal permits the sheet to be handled without special precautions to avoid contact with solid surfaces.

One may also provide protection to the metallized film before it contacts any solid surface by roll coating or the like with a wet roller. For example, oligomers applied by roll coating are crosslinked by electron beam irradiation. Another technique is to laminate another sheet over the metallized film. For example, a thin sheet of protective plastic has an adhesive applied and is brought into contact with the metal in a typical laminating process. Alternatively, one may use a hot melt technique where a thin sheet of polyethylene, for example, has a surface melted and brought into contact with the metal film before the surface solidifies, so that the sheet adheres to the metal.

At page 22, line 25 through page 23, line 3:

A substantial improvement in oxygen permeability is believed to be attributable to formation of a liquid film of monomer on the surface of the polypropylene, followed by cross linking of the polyfunctional acrylate. Applying the layer by condensing from the vapor phase assures smooth and uniform coating of the substrate, thereby forming an excellent surface for receipt of the metallization. Cross linking upon curing the acrylate produces a material having low inherent oxygen permeability. Adding a second layer of acrylate monomer which is polymerized in situ is believed to rectify any defects in the underlying layers and provide an additional thickness of material with inherently low oxygen permeability.